AMENDMENT - UNMARKED VERSION

Presented below are the amendments in a clean, unmarked format with changes entered and not marked.

In the Claims:

16. (Unchanged) An apparatus comprising:

an analog photocell;

a sample and hold amplifier, a first input to the sample and hold amplifier being a charge from the analog photocell, a second input to the sample and hold amplifier being a reference voltage; and

an analog to digital converter, the analog to digital converter converting the output of the sample and hold amplifier to a digital value.

17. (Unchanged) The apparatus of claim 16, wherein the sample and hold amplifier produces a scaled version of the voltage output of the analog photocell.

18. (Unchanged - amended once previously) The apparatus of claim 17, wherein the scaled version of the voltage output of the analog photocell produced by the sample and hold amplifier is chosen to match the dynamic range of the analog photocell with the dynamic range of the analog to digital converter.

19. (Unchanged - amended once previously) The apparatus of claim 18, wherein the output of the sample and hold amplifier is scaled based, at least in part, on ambient light conditions.

20. (Unchanged) The apparatus of claim 16, wherein the analog to digital converter comprises:

a voltage controlled oscillator, an input of the voltage controller oscillator being a output from the sample and hold amplifier; and

a counter, the counter being driven by an output of the voltage controlled oscillator.

21. (Unchanged) The apparatus of claim 20, further comprising a memory, the memory storing an output of the counter.

22. (Unchanged) The apparatus of claim 21, wherein counter is reset after a certain period of time.

23. (Unchanged) The apparatus of claim 22, wherein the period of time is an integration time for the analog photocell.

24. (Unchanged) A method comprising:

inputting a charge of a analog photocell to a sample and hold amplifier;

inputting a reference voltage to the sample and hold amplifier;

converting an output of the sample and hold amplifier to a digital value.

25. (Unchanged) The method of claim 24, further comprising:

modifying the scale of the analog photocell charge using the sample and hold amplifier.

26. (Unchanged - amended once previously) The method of claim 25, wherein the scale of the analog photocell charge is modified by the sample and hold amplifier to match a dynamic range of the analog photocell to a dynamic range appropriate for converting the output of the sample and hold amplifier to a digital value.

27. (Unchanged - amended once previously) The method of claim 26, wherein the scale of the analog photocell charge is based, at least in part, on ambient light conditions.

28. (Unchanged) The method of claim 24, wherein converting the output of the sample and hold amplifier to a digital value comprises:

applying an output of the sample and hold amplifier to a voltage controlled oscillator; and

driving a counter using the output of the voltage controlled oscillator.

29. (Unchanged) The method of claim 28, wherein a count from the counter is proportional to the intensity of light on the analog photocell during a previous integration time period for the photocell.

30. (Unchanged) The method of claim 29, further comprising storing a count from the counter in a register.

31. (Unchanged) The method of claim 30, further comprising resetting the counter after the passage of the integration time period for the photocell.

32. (Unchanged) An digital photocell comprising:

an analog photocell;

a sample and hold amplifier, a first input of the sample and hold amplifier being an output of the analog photocell and a second input of the sample and hold amplifier being a reference voltage;

a voltage controlled oscillator, an input to the voltage controlled oscillator being an output of the sample and hold amplifier;

a counter, a speed at which the counter operates being controlled by an output of the voltage controlled oscillator; and

a register, the register storing an output of the counter.

33. (Unchanged) The digital photocell of claim 32, wherein the counter counts for a specified time period and wherein the counter is reset at the end of the time period.

34. (Unchanged) The digital photocell of claim 32, wherein the time period is an integration time period for the analog photocell.

35. (Unchanged) The digital photocell of claim 34, wherein the output stored in the register is a digital value that reflects an intensity of light incident on the analog during the previous integration time period.

36. (Unchanged) The digital photocell of claim 32, wherein the digital photocell is included in a pixel array.

37. (Unchanged) The digital photocell of claim 32, wherein the sample and hold amplifier scales the input to the voltage controlled oscillator.

38. (Unchanged) The digital photocell of claim 37, wherein the input to the voltage controlled oscillator is scaled based at least in part on ambient light levels.

39. (Unchanged) A method comprising:

applying a voltage of a analog photocell as a first input to a sample and hold amplifier;

applying a reference voltage as a second input to the sample and hold amplifier;

applying an output of the sample and hold amplifier to a voltage controlled oscillator;

driving a counter with the output of the voltage controlled oscillator;

saving a count from the counter; and

resetting the counter at the conclusion of a time period.

40. (Unchanged) The method of claim 39, wherein the time period is an integration period of the analog photocell.

41. (Unchanged) The method of claim 39, wherein the count from the counter is saved in a register.

42. (Unchanged) The method of claim 39, wherein the count from the counter is proportional to intensity of light incident on the analog photocell.